Ogden Air Logistics Center

U.S. AIR FORCE

Qualification of Competitively Restricted Items

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Overview

- Why
- Process
- Summary

Purpose

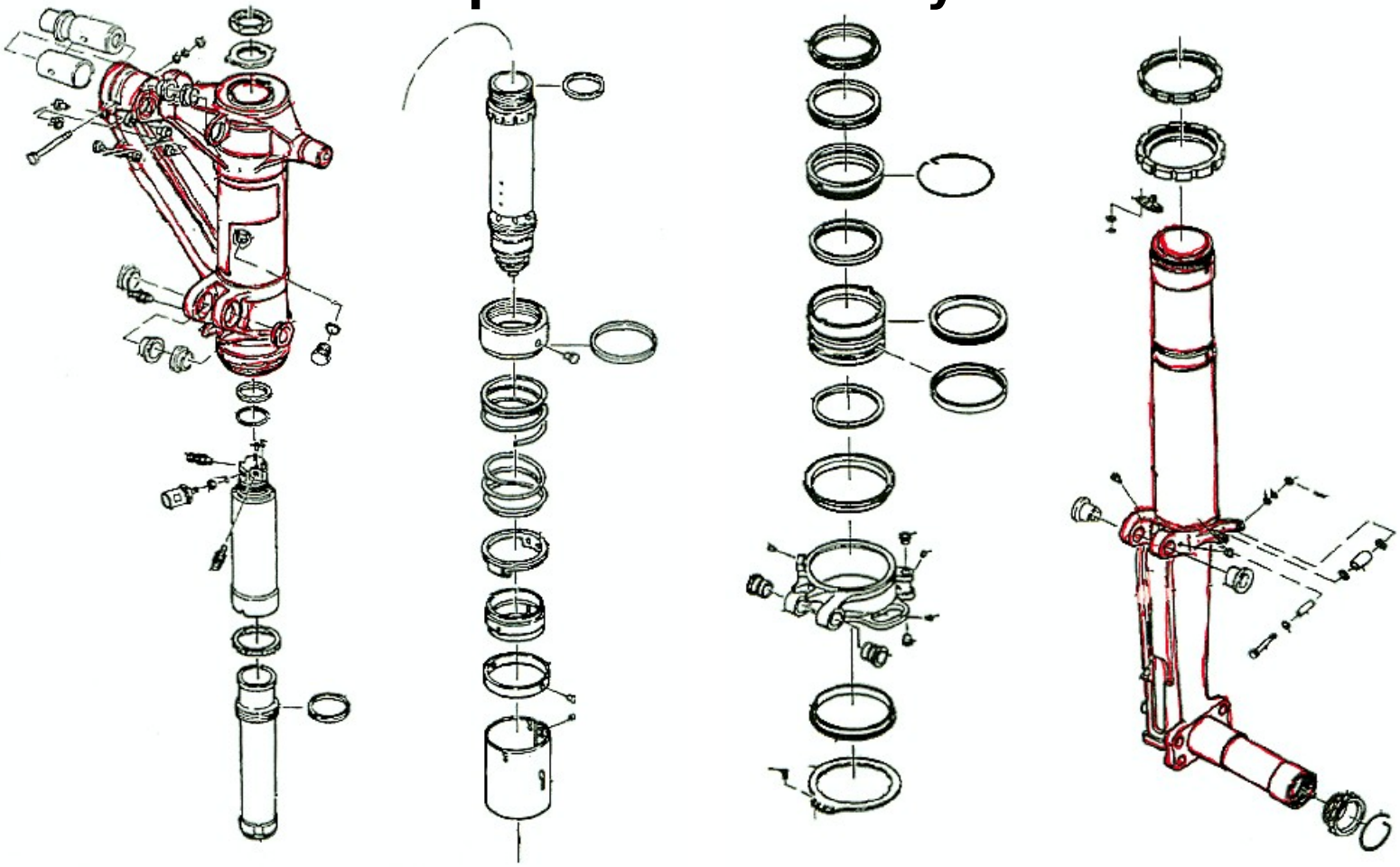
- Source Qualification to ensure capability
  - Demonstrated prior to contract award
    - By similarity or actual manufacture
    - Must meet critical characteristics
  - Failure to procure from a fully qualified source
    - Degrade the mission capability
    - Possible loss of life or aircraft
- Landing Gear is 'FLIGHT CRITICAL'
- Landing Gear is NOT damage tolerant
- Landing Gear is NOT redundant

Competitively Restricted Items

- **Landing Gear Structural Items**
  - **Flight safety critical**
  - **Non-redundant**
  - **Failure causes mishaps & loss of aircrew**
  - **<u>Very</u> sensitive materials: Damage *IN*-tolerant!**
    - **Grinding burns**
    - **Hydrogen embrittlement**
    - **Fatigue**
    - **Corrosion**

Competitively Restricted Items

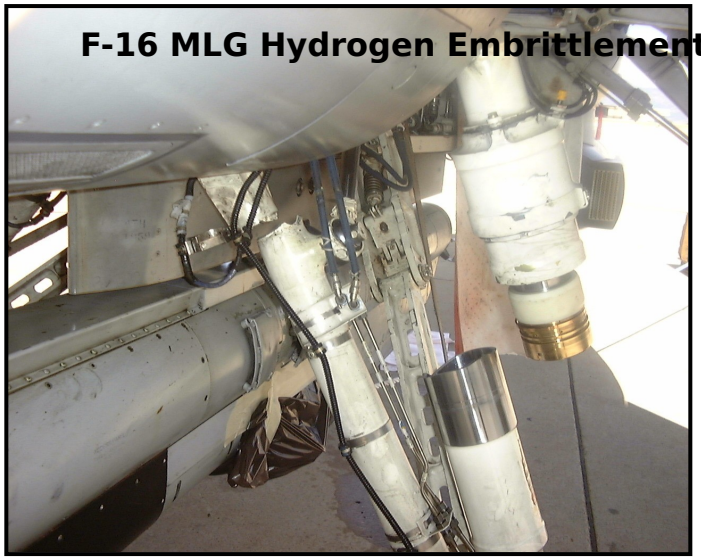
Example: F-15E MLG Cylinder & Piston



Competitively Restricted Items

F-15E MLG Piston Grinding Burn Failure

F-16 MLG Hydrogen Embrittlement



Qualification Process

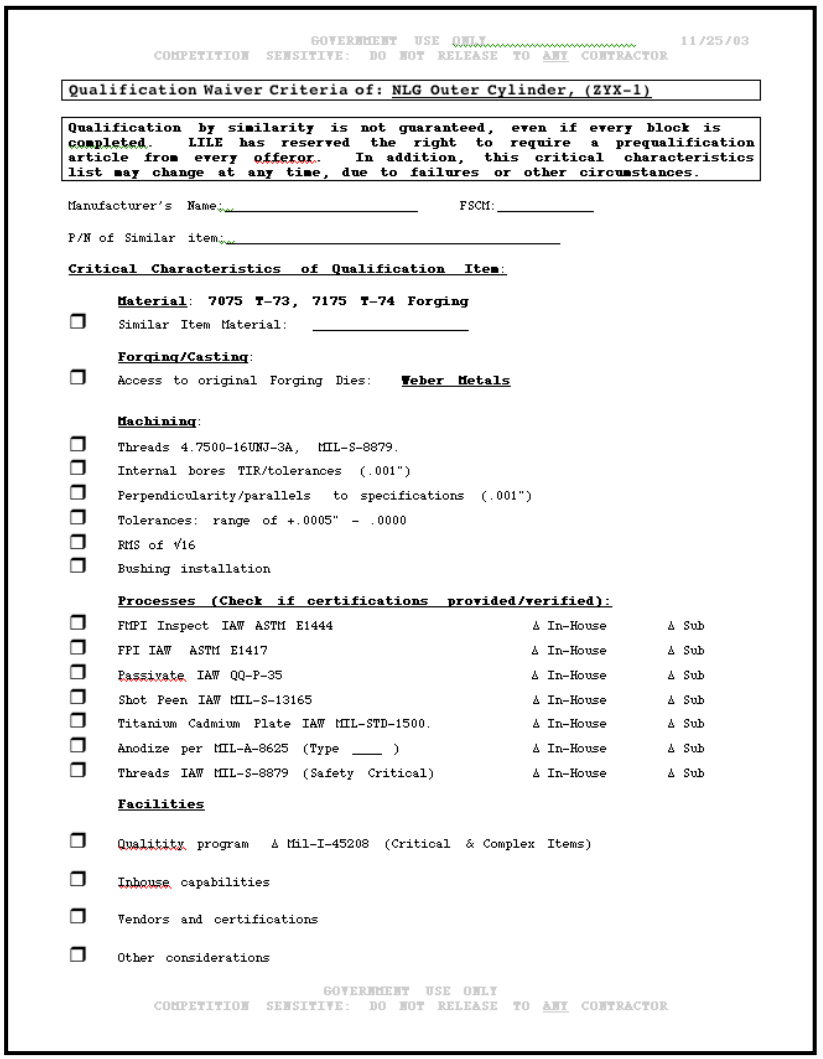
- **Manufacture ‘qualification article’**
  - **Qualification PL 98-525, Section 2319**
  - **Submit qualification article for testing**
    - **First article type dimensional conformance**
    - **Metallurgical conformance**
    - **NDI testing**
  - **Qualification article subjected to fit, form, function verification as required (same as original item)**
  - **All certifications must be provided with the qualification article**
  - **Upon approval of qualification article, you are added to the source control document as an approved source**
  - **Best method for demonstrating capability to manufacture critical landing gear items**

Qualification Waiver Process

- **Qualification by Similarity**
  - **Constitutes a request to <u>waive</u> standard "qualification article" process**
  - **Contractor is responsible to provide data to clearly demonstrate manufacture capability using a similar item**
  - **Similar item must have the same critical characteristics**
    - **Material/Forging Processes**
    - **Machining/Tolerance**
    - **Processes/Certifications**
    - **Quality Requirements**
    - **Complexity**
  - **<u>All</u> critical features must occur on single item**

Qualification Waiver process

- Engineer creates waiver checklist during screening
- Consistency in evaluation of waiver requests



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COMPETITION SENSITIVE: DO NOT RELEASE TO ANY CONTRACTOR

Qualification Waiver Criteria of: NLG Outer Cylinder, (ZYX-1)

Qualification by similarity is not guaranteed, even if every block is completed. LILE has reserved the right to require a prequalification article from every offeror. In addition, this critical characteristics list may change at any time, due to failures or other circumstances.

Manufacturer's Name:_____ FSCM:_____

P/N of Similar item:_____

Critical Characteristics of Qualification Item:

Material: 7075 T-73, 7175 T-74 Forging

❒ Similar Item Material: _____

Forging/Casting:

❒ Access to original Forging Dies: **Weber Metals**

Machining:

❒ Threads 4.7500-16UNJ-3A, MIL-S-8879.
❒ Internal bores TIR/tolerances (.001")
❒ Perpendicularity/parallels to specifications (.001")
❒ Tolerances: range of +.0005" - .0000
❒ RMS of √16
❒ Bushing installation

Processes (Check if certifications provided/verified):

❒ FMPI Inspect IAW ASTM E1444	Δ In-House	Δ Sub
❒ FPI IAW ASTM E1417	Δ In-House	Δ Sub
❒ Passivate IAW QQ-P-35	Δ In-House	Δ Sub
❒ Shot Peen IAW MIL-S-13165	Δ In-House	Δ Sub
❒ Titanium Cadmium Plate IAW MIL-STD-1500.	Δ In-House	Δ Sub
❒ Anodize per MIL-A-8625 (Type ____)	Δ In-House	Δ Sub
❒ Threads IAW MIL-S-8879 (Safety Critical)	Δ In-House	Δ Sub

Facilities

❒ Qualitity program Δ Mil-I-45208 (Critical & Complex Items)

❒ Inhouse capabilities

❒ Vendors and certifications

❒ Other considerations

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Qualification Waiver Process

- **Qualification by Similarity - continued**
  - **Data must be presented in an easy to read and logical format**
  - **Similar item must meet the following requirements:**
    - **Single Item**
    - **Generally same size and shape**
    - **Meet all critical requirements**
- **This process does not guarantee a vendor will be granted a waiver to the "qualification article" process**
- **Pre-qualification article method always works!**